

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2004/001642

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7 B61L 23/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6 B61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	D1 : US 5,398,894 A (Union Switch & Signal Inc.) 21.Mar.1995 ( see figure 1, figure 3, claim 1)	1
A	D2 : US 4,711,478 A (General Signal Corporation) 8.Dec.1987 ( see figure 1, abstract, claim 1)	1
A	D3 : US 5,330,136 A (Union Switch & Signal Inc.) 19. Jul. 1994 ( see figure 1, figure 2, abstract )	1

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:  
 "A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier application or patent but published on or after the international filing date  
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
 "&" document member of the same patent family

Date of the actual completion of the international search

08 NOVEMBER 2004 (08.11.2004)

Date of mailing of the international search report

09 NOVEMBER 2004 (09.11.2004)

Name and mailing address of the ISA/KR

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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

PCT/KR2004/001642

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US4711418A	08.12.1987	AU7043087A CA1269749A1 ES2004726A6 GB2189066A NL8700674A US4711418A	15.10.1987 29.05.1990 01.02.1989 14.10.1987 02.11.1987 08.12.1987
US5330136A	19.07.1994	AU4860993A AU661810B2 CA2106635A1 MX9305888A1 US5330136A	31.03.1994 03.08.1995 26.03.1994 31.05.1994 19.07.1994